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Effect of transplantation of allogeneic multipotent mesenchymal bone marrow stromal cells on regeneration of liver after extended hepatectomy (experimental study)

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Abstract

© 2018 Human Stem Cell Institute. All rights reserved. Multipotent mesenchymal stromal cells can be a drug for treatment of acute liver failure. The purpose of this study was to assess the effect of multipotent mesenchymal stromal cells on the proliferative, mitotic activity of hepatocytes and morphometric criteria for the regeneration of liver parenchyma after 68 % partial hepatectomy in rats. The number of mitosis, PCNA positive cells, diameter of nucleus of hepatocytes, size of hepatocytes, nuclear-cytoplasmic ratio (NCR), the area of hepatic lobules were evaluated on 1, 2, 4, 14 days after surgery. The results of the study showed that intravenous administration of allogeneic mesenchymal multipotent stromal cells from bone marrow after extended hepatectomy increase the number of proliferating hepatocytes (PCNA positive cells), but does not affect the number of mitoses, the diameter of the nucleus, the area of hepatocytes, NCR and hepatic lobules. Probably, at this time, regeneration proceeds primarily through an intracellular mechanism.

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Keywords

Extended hepatectomy, Inferior vena cava, Multipotent mesenchymal stromal cells, Transplantation

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